PVP 14

Code: ME8T2B

IV B.Tech - II Semester - Regular Examinations - March 2018

AUTOMATION IN MANUFACTURING
(MECHANICAL ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

Answer ***all*** the questions. All questions carry equal marks

11x 2 = 22 M

1.

a) What are the different types of automated manufacturing systems?
b) Name the basic elements of an automated system.
c) List the reason for using buffer storage in a production line.
d) What do you mean by starving in automated production line?
e) Mention some of the applications of automated production lines.
f) Define ‘work-in-process’.
g) List the different categories of automated guided vehicles.
h) Name the different types of adaptive control systems.
i) What is meant by adaptive control constraint (ACC)?
j) What are the applications of machine vision system?
k) Differentiate the accuracy and precision of an automated inspection system.

PART – B

Answer any ***THREE*** questions. All questions carry equal marks. 3 x 16 = 48 M

2.a) With neat sketch explain the Geneva Indexing Mechanism for a rotary indexing table. 8 M

b) Describe in detail the various reasons for Automation in manufacturing industries. 8 M

3.a) Briefly discuss about lower-bound approach and upper bound approach in analysis of transfer line with no internal storage. 8 M

b) Name the different algorithms used to solve line balancing problem and discuss any one algorithm procedure in detail. 8 M

4.a) Explain the advantages of implementing various principles of material handling. 8 M

b) Briefly describe the Storage structure of an AS/RS. 8 M

5. With the help of a neat block diagram, discuss the Adaptive Control with Optimization for drilling process to obtain the optimal process parameters. 16 M

6.a) Describe the basic functions of a machine vision system with neat sketch. 10 M

b) List some of the applications of CMM. 6 M